## SEQUENCE LISTING

<110 Sumitomo Chemical Co., Ltd.

<120> ANALYSIS OF AGONIST-ACTIVITY AND ANTAGONIST-ACTIVITY TO CYTOKININ RECEPTOR

<130> P152622

<160> 22

<170> PatentIn Ver. 2.1

<210> 1

<211> 3531

<212> DNA

<213 >Arabidopsis thaliana

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<221> CDS

⟨222⟩ (1).. (3531)

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nic t	Olu		Ulu	пор	OIII	1111		741	OIN	пор	Cys		110	UI	u A	211	
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Cln	Clu	Thr	Vol	Sar	Цic	Ha	Vol	Co#	Val	Aan	Mat	Ma t	Com	C1.	. C1		
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<b>в</b> ва	igu	agu	gag	icc	ggı	gag	aca	gıı	agu	ggg	ııı	CCI	gcg	gta	aal	2304

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nog sens non trans

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<212> PRT

<213> Arabidopsis thaliana

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Leu Gly Arg Ser Gln Lys Glu Glu Thr Asp Ser Cys Asn Gly Glu Glu

Lys Val Leu Tyr Arg His Gln Asn Val Thr Arg Ser Glu Ile His Asp

Leu Val Ser Leu Phe Ser Asp Ser Asp Gln Val Thr Ser Phe Glu Cys

His Lys Glu Ser Ser Pro Gly Met Trp Thr Asn Tyr Gly Ile Thr Cys

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Phe	Asp	Pro	Ala	Pro	Ile	Gln	Asp	Glu	Tyr	Ala	Pro	Val	Ile	Phe	Ala
	370					375					380				
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385					390					395					400
Glu	Asp	Arg	Glu	Asn	Ile	Leu	Arg	Ala	Arg	Ala	Ser	Gly	Lys	Gly	Val
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Leu	Thr	Phe	Ala	Val	Tyr	Asp	Thr	Ser	Leu	Pro	Pro	Asp	Ala	Thr	Glu
		435					440					445			
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	450					455					460				
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Glu	Arg	Gly	His	He	Phe	He	Ser	Val		Leu	Ala	Asp	Glu		Lys
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Glu	Pro	Leu	Thr	He	Glu	Asp	Ala		Leu	Lys	Gln	Arg		Ala	Leu
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Gly	Cys	Ser	Glu	Ser	Gly	Glu	Thr	Val	Ser	Gly	Phe	Pro	Ala	Val	Asn
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Gln	Asn	Ser	Asp	Gln	He	Lys	Leu	Leu	Val	Thr	Val	Glu	Asp	Thr	Gly
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Asp	Leu	Ala	He	Gln	Glu	Phe	Thr	Gly	Leu	Arg	Ala	Leu	Val	He	Asp
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Asn	Arg	Asn	He	Arg	Ala	Glu	Val	Thr	Arg	Tyr	Glu	Leu	Arg	Arg	Leu
			900					905					910		
Gly	Ile	Ser	Ala	Asp	Ile	Val	Ser	Ser	Leu	Arg	Met	Ala	Cys	Thr	Cys
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Cys	He	Ser	Lys	Leu	Glu	Asn	Leu	Ala	Met	He	Leu	He	Asp	Lys	Asp
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Ala	Trp	Asn	Lys	Glu	Glu	Phe	Ser	Val	Leu		Glu	Leu	Phe	Thr	
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		995				]	1000					1005			
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1	010				Ì	1015				-	1020				
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Met				Pro	His				Ala	Cys				Leu	Gln
	1	Lys 1075	Pro			,	Phe 1080	Asp				Me t 1085	Asp	Leu Glu	
Met	1	Lys 1075	Pro		Gly	,	Phe 1080	Asp		Arg		Me t 1085	Asp		
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Met Glu 1108	Pro 1090 Arg	Lys 1075 Glu Glu	Pro Met	Asp Asn	Gly Lys	Phe 1095 Lys	Phe 1080 Glu Ile	Asp Ala Ala	Thr	Arg Gly	Arg 1100 Glu	Met 1085 Val Val	Asp Arg Ser	Glu Ala	Leu Glu 1120
Met Glu 1108	Pro 1090 Arg	Lys 1075 Glu Glu	Pro Met Ile Lys	Asp Asn	Gly Lys	Phe 1095 Lys	Phe 1080 Glu Ile	Asp Ala Ala His	Thr	Arg Gly	Arg 1100 Glu	Met 1085 Val Val	Asp Arg Ser	Glu Ala	Leu Glu 1120
Met Glu 1108 Met	Pro 1090 Arg 5	Lys 1075 Glu Glu Cys	Pro Met Ile Lys	Asp Asn Phe	Gly Lys 1110 Ser	Phe 1095 Lys Ser	Phe 1080 Glu Ile Trp	Asp Ala Ala His	Thr Ser Val	Arg Gly 1115 Pro	Arg 1100 Glu Ile	Met 1085 Val Val Leu	Asp Arg Ser Ala	Glu Ala Met	Leu Glu 1120 Thr
Met Glu 1108 Met	Pro 1090 Arg 5	Lys 075 Glu Glu Cys	Pro Met Ile Lys	Asp Asn Phe	Gly Lys 1110 Ser	Phe 1095 Lys Ser	Phe 1080 Glu Ile Trp His	Asp Ala Ala His	Thr Ser Val	Arg Gly 1115 Pro	Arg 1100 Glu Ile	Met 1085 Val Val Leu	Asp Arg Ser Ala	Glu Ala Met	Leu Glu 1120 Thr
Met Glu 1105 Met	Pro 1090 Arg Phe	Lys 075 Glu Glu Cys Val	Pro Met Ile Lys Ile	Asp Asn Phe 1125 Gln	Gly Lys 1110 Ser Ala	Phe 1095 Lys Ser	Phe 1080 Glu Ile Trp	Asp Ala Ala His Glu	Thr Ser Val 1130 Glu	Arg Gly 1115 Pro	Arg 1100 Glu Ile Met	Met 1085 Val Val Leu	Asp Arg Ser Ala Cys	Glu Ala Met	Leu Glu 1120 Thr Met

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Phe Trp Met Leu Cys Cys Trp Phe Val Ser Trp Phe Val Asp Asn Gly
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Ile	Glu	Asp	Lys	Ser	Gly	Leu	Leu	Val	Gly	Ser	Val	Gly	Asp	Leu	Glu	
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Lys	Thr	Lys	Met	Thr	Thr	Leu	Lys	Lys	Lys	Asn	Lys	Met	Trp	Phe	Trp	
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Phe	Leu	Gly	Ser	Val	Lys	Phe	Asn	Lys	Ala	Trp	Trp	Arg	Lys	Leu	Val	
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gtg	gtt	tgg	gtt	gtc	t t c	t gg	gto	ttg	gto	t c t	ati	tgg	g ac	g tt	t tgg	336
Val	Val	Trp	Val	Val	Phe	Trp	Val	Leu	Val	Ser	Ile	Trp	Thr	Phe	Trp	
			100					105					110	)		
tac	ttt	agc	tcg	caa	gc t	ate	gag	g aag	g agg	g aaa	a gag	g ac	g ct	a gc	t agt	384

Tyr	Phe	Ser	Ser	Gln	Ala	Met	Glu	Lys	Arg	Lys	Glu	Thr	Leu Ala	Ser	
		115					120					125			
atg	tgt	gat	gag	aga	gc t	cgt	atg	ctg	cag	gat	cag	ttc	aac gt	t agc	432
Met	Cys	Asp	Glu	Arg	Ala	Arg	Met	Leu	Gln	Asp	Gln	Phe	Asn Val	Ser	
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Met	Asn	His	Val	Gln	Ala	Met	Ser	He	Leu	Ile	Ser	Thr	Phe His	His	
145					150					155				160	
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Glv	Lys	He	Pro	Ser	Ala	He	Asp	Gln	Arg	Thr	Phe	Ser	Glu Tyı	r Thr	
	_,_			165					170				175		
ga	t aga	act	tcc	: ttt	gag	agg	z cct	ctt	ac	t ag	c gg	g gta	get ta	ıt gct	576
<i>-</i> 04															
Ası	n Arg	Thr	Ser	Phe	Glu	Arg	Pro	Leu	Thr	Ser	Gly	Val	Ala Ty	r Ala	
110]	, 111 E	, 1111	180		014			185			-		190		
			100					100							
o t	~ 0.00	r ata	• a t a		t tos		. aac	r ogs	a oraș	or tt	റ മു	o aos	g caa ca	aa ggt	624
άl	s ags	4 B18	5 010	, Ual	ııca	ı gaş	5 458	, <b>5</b> uc	ı gu	5 11	o gu	o "66	,	60'	~~.
Ma	t Arc	. Val	ΙΔυ	цic	Sar	G1 m	ı Aro	Gln	Glr	Ph <i>e</i>	e Glo	ı Arg	Gln Gl	n Glv	

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g 672	c cca gtt cac aag	gaa caa	ctt	tct	tat	atg	aag	agg	att	act	tgg
	Pro Val His Lys		Leu	Ser		Met	Lys	Arg	Ile		Trp
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g 720	t gtc caa gaa gag	cca tcc	gaa	ttg	gct	gaa	ctg	gac	tat	gac	gat
	Val Gln Glu Glu	Pro Ser I	Glu	Leu	Ala	Glu	Leu	Asp	Tyr	Asp	Asp
	240	235				230					225
t 768	t cac gtt gtt tct	act gtt	gac	cag	gct	ttt	atc	gtc	cca	gct	tac
	His Val Val Ser	Thr Val S	Asp	Gln	Ala	Phe	Ile	Val	Pro	Ala	Tyr
	255	250					245				
c 816	c gtt ttg cgg gcc	cgt gaa	gat	gaa	aaa	ggg	tct	ctg	atg	gat	ctc
				<b>.</b>	<b>.</b>	0.1	0		W. i	<b>A</b>	T
	Val Leu Arg Ala	Arg Glu A		Glu	Lys	Gly	Ser		мет	Asp	Leu
	270		265					260			
g 864	cca ttg ata aag	gct cct	aca	ttg	gtt	ggg	aaa	ggt	tca	agt	agg
	Pro Leu Ile Lys	Ala Pro P	Thr	Leu	Val	Gly	Lys	Gly	Ser	Ser	Arg

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Thr	Asn 290	Arg	Leu	Gly	Val	Ile 295	Leu	Thr	Phe	Ala	Val 300	Tyr	Lys	Arg	Asp		
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Leu 305	Pro	Ser	Asn	Ala	Thr 310	Pro	Lys	Glu	Arg	Ile 315	Glu	Ala	Thr	Asn	Gly 320		
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Tyr	Leu	Gly	Gly	Val 325	Phe	Asp	Ile	Glu	Ser 330	Leu	Val	Glu	Asn	Leu 335	Leu		
caa	cag	ctg	gct	agc	aag	caa	acg	att	ctt	gtc	aat	gtg	tac	gat	t <b>a</b> tc	10	56
Gln	Gln	Leu	Ala 340	Ser	Lys	Gln	Thr	Ile 345	Leu	Val	Asn	Val	Tyr 350	Asp	Ile		
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Lys 385	His	Glu	Met	Arg	Cys 390	Arg	Phe	Lys	Gln	Lys 395	Pro	Pro	Trp	Pro	Val 400	
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Asp		Asp 435	Lys	Met	Lys	Gln	Leu 440	Lys	Lys	Lys	Ala	Glu 445	Ala	Ala	Asp	
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Val	Ala	Lys	Ser	GIN	Pne	Leu	Ага	1111	vai	261	піз	GIU	116	AIg	1111	
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		-														
Len	Asp	Val	Thr	Gln	Gln	Asp	Tyr	Val	Arg	Thr	Ala	Gln	Ala	Ser	Gly	
Dou	ПОР	,	- ** -	485			- •		490					495		
				100					200							
0.00	go t	t t a	ate	tea	cta	ata	aat	ຕາຕ	ort t	t t o	gar	caa	gca	เลลด	g att	1536
aaa	gCi	ııa	gic	itg	Cia	aia	aai	545	, 511		, guo	Cuc	, goo		,	1000
	A 1 -	T	1/ - 1	C a m	Lau	Ila	Aon	C111	Vo l	Lou	Acn	Cln	Ala	Lve	اً ا	
Lys	Ala	Leu			Leu	116	Asn		Val	rea	vah	GIII		ГАЗ	110	
			500					505					510			
																1504
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Glu	Ser	Gly	Lys	Leu	Glu	Leu	Glu	Glu	Val	Arg	Phe	Asp	Leu	Arg	Gly	
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116	530	ASP	ASD	vai	Leu	535	Leu	rne	sei	361	540	361	UIII	O11	т гу	S	
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Gly	Val	Glu	Leu	Ala		Tyr	Ile	Ser	Asp		Val	Pro	Asp	Me			
545					550					555					56	0	
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Ile	Gly	Asp	Pro		Arg	Phe	Arg	Gln	Ile 570	Leu	Thr	Asn	Leu	Ме 57		У	
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Asn	Ser	He	Lys	Phe	Thr	Glu	Lys		His	Ile	Phe	Val			l Hi	S	
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Pro	Glu	Ser	Thr	Leu	Ser	Gly	Leu	Pro	Val	Ala	Asp	Arg	Gln	Ar	g Se	er	

610	615	620

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C1	W- 1	C1	D	0	7.1	0		m1								
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Phe	Ser	Asn	Gly	Met 725	Gln	Pro	Ala	Glu	Arg 730	Lys	Asn	Asp	Asn	Asn 735	Gln		
ccc	ata	ttc	tcg	gaa	ttc	cgg	ggc	atg	aaa	gct	gtg	gtt	gtg	g ga	c cat		2256
Pro	Ile	Phe	Ser 740	Glu	Phe	Arg	Gly	Me t 745	Lys	Ala	Val	Val	Val 750	Asp	His		
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Arg	Pro	Ala 755	Arg	Ala	Lys	Val	Ser 760	Trp	Tyr	His	Phe	Gln 765	Arg	Leu	Gly		
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Lys 785	Ile	Gly	Thr	Thr	Thr 790	Val	Asn	Met	Ile	Leu 795	Ile	Glu	Gln	Glu	Ile 800	
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Ser	Ile	Ser 835	Glu	Ala	Leu	Cys	Thr 840	Gly	Ile	Asp	Pro	Pro 845	Ile	Val	Ile	
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Val	Lys 850		Leu	Arg	Ala	Ser 855	Met	Leu	Ala	Ala	Thr 860	Leu	Gln	Arg	Gly	
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Glu	Glu	Met	Asn	Lys	Arg	Пе	Lys	Asn	Gly	Glu	Ala	Leu	lle	Val	Glu	
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Asn	Gly	Asn	Lys	Thr	Ser	Trp	His		Pro	Val	Leu	Ala		Thr	Ala	
			980					985					990			
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gat	gtg	atc	caa	gca	acg	cat	gag	gaa	ıgı	ctg	g aag	gigi	gga	aig	g gat	3024
	77 1	<b>T</b> 1	<b>61</b>	A 1 =	Th	II; a	Clu	Clu	Cuo	Lou	Lve	Cve	Clv	Met	Asn	
Asp	vai			Ala	Inr		1000	GIU	Cys	Leu		Cys 1005	dry	MCI	пор	
		995					1000					1000				
ar ar a		at c	tes		cca		ี ซลล	. ഗ്രദ		7 CAS	z cts	z tac	ลฐอ	gaa	a gtt	3072
ggg	lai	gio	ııca	ı aac			, gud	, gou		,	, ,,,	, , , ,	400	, 0	. 0	
Glv	Tyr	· Val	Ser	· Lvs	Pro	Phe	e Glu	Ala	Glu	Gln	Leu	Tyr	Arg	Glu	Val	
Gly	1010		. DC1	Цуо		1015			V		1020					
	1010				•	1010										
tct	് നമ	: 11:	t t t (	c aat	t tes	g cc	t tca	a gai	t ac	a ga	a tc:	a taa	•			3111
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Ile Glu Asp Lys Ser Gly Leu Leu Val Gly Ser Val Gly Asp Leu Glu

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Lys Thr Lys Met Thr Thr Leu Lys Lys Asn Lys Met Trp Phe Trp

50 55 60

Asn Lys Ile Ser Ser Ser Gly Leu Lys Ile Pro Ser Phe Ser Tyr Gln

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Phe Leu Gly Ser Val Lys Phe Asn Lys Ala Trp Trp Arg Lys Leu Val

85 90 95

Val Val Trp Val Val Phe Trp Val Leu Val Ser Ile Trp Thr Phe Trp

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Tyr Phe Ser Ser Gln Ala Met Glu Lys Arg Lys Glu Thr Leu Ala Ser

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Met Cys Asp Glu Arg Ala Arg Met Leu Gln Asp Gln Phe Asn Val Ser

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Tyr	Leu	Gly	Gly	Val	Phe	Asp	Ile	Glu	Ser	Leu	Val	Glu	Asn	Leu	Leu
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Lys	His	Glu	Met	Arg	Cys	Arg	Phe	Lys	Gln	Lys	Pro	Pro	Trp	Pro	Val
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Ala	His	Ile	Ile	His	Ala	Thr	Val	Ser	Arg	Ile	His	Lys	Val	Glu	Glu
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Asp	Cys	Asp	Lys	Met	Lys	Gln	Leu	Lys	Lys	Lys	Ala	Glu	Ala	Ala	Asp
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Val	Ala	Lys	Ser	Gln	Phe	Leu	Ala	Thr	Val	Ser	His	Glu	Ile	Arg	Thr
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Pro	Met	Asn	Gly	Val	Leu	Gly	Met	Leu	His	Met	Leu	Met	Asp	Thr	Glu
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Leu	Asp	Val	Thr	Gln	Gln	Asp	Tyr	Val	Arg	Thr	Ala	Gln	Ala	Ser	Gly
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Lys	Ala	Leu	Val	Ser	Leu	Ile	Asn	Glu	Val	Leu	Asp	Gln	Ala	Lys	He
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Glu	Ser	Gly	Lys	Leu	Glu	Leu	Glu	Glu	Val	Arg	Phe	Asp	Leu	Arg	Gly
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Ile	Gly	Asp	Pro	Gly	Arg	Phe	Arg	Gln	Ile	Leu	Thr	Asn	Leu	Met	Gly
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Leu	Val	Asp	Glu	Leu	Phe	Glu	Ser	<u>I</u> le	Asp	Gly	Glu	Thr	Ala	Ser	Ser
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Pro	Glu	Ser	Thr	Leu	Ser	Gly	Leu	Pro	Val	Ala	Asp	Arg	Gln	Arg	Ser
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Phe	Ser	Asn	Gly	Met	Gln	Pro	Ala	Glu	Arg	Lys	Asn	Asp	Asn	Asn	Gln
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Pro	Ile	Phe	Ser	Glu	Phe	Arg	Gly	Me t	Lys	Ala	Val	Val	Val	Asp	His
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Lys	Ile	Gly	Thr	Thr	Thr	Val	Asn	Met	Ile	Leu	Ile	Glu	Gln	Glu	Ile
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Trp	Asn	Arg	Glu	Ala	Asp	Asp	Phe	Ile	Lys	Lys	Leu	Gln	Lys	Asp	Pro
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Ser	Ile	Ser	Glu	Ala	Leu	Cys	Thr	Gly	Ile	Asp	Pro	Pro	Ile	Val	He
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Leu	Ile	Leu	Arg	Asn	Leu	Leu	Leu	Gly	Arg	Lys	Ile	Leu	Ile	Val	Asp
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Gly	Ala	Asp	Val	Val	Cys	Ala	Glu	Ser	Gly	Ile	Lys	Ala	He	Ser	Leu
		915					920					925			
Leu	Lys	Pro	Pro	His	Glu	Phe	Asp	Ala	Cys	Phe	Met	Asp	He	Gln	Met
	930					935					940			•	
Pro	Glu	Met	Asp	Gly	Phe	Glu	Ala	Thr	Arg	Arg	He	Arg	Asp	Met	Glu
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Asn	Asn	Asn	Asn	Asn 85		Leu	Met	Gly	Asn 90	Lys	Lys	Gly	Ser	Thr 95	Phe	

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His	Ala	Leu	Ala	Ile 165	Leu	Val	Ser	Thr	Phe 170	His	Tyr	His	Lys	Asn 175	Pro	
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Phe	Glu	Arg 195	Pro	Leu	Leu	Ser	Gly 200	Val	Ala	Tyr	Ala	Glu 205	Lys	Val	Val	
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Asn	Phe 210	Glu	Arg	Glu	Met	Phe 215	Glu	Arg	Gln	His	Asn 220	Trp	Val	Ile	Lys	
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Lou	Gly	Val	Val	Len	Thr	Phe	Pro	Val	Tvr	Lvs	Ser	Ser	Leu	Pro	Glu	
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	110	1111	7 d 1	oru	310	m s	110	711 G		315			- • -		320	
305					010					010						
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GIY	Ala	. 1110	, nsp	325		501	ncu	, 41	330	11011				335		
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Ala Gly Asn Gln Ala Ile Val Val His Val Tyr Asp Ile Thr Asn Ala

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His 385	Lys	Met	Ile	Cys	Arg 390	Tyr	His	Gln	Lys	Ala 395	Pro	Ile	Pro	Le		sn 00	
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Phe	His	Glu 435	Met	Gln	Glu	Leu	Lys 440	Val	Arg	Ala	Glu	Ala 445	Ala	As	p Va	al	
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Sei	Val	Lys	Phe 580	Thr	Glu	Lys	Gly	His 585		Phe	Val	Lys	Val 590		s L	eu	
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864	0.0		G	0			Ü										
Clv	Val	Sar	Clu	Glu	Met	Ile	Val	Val	Ser	Lvs	Gln	Ser	Ser	Tvr	Ası	1	
GIY		361	Giu	Giu	MCı		vai	vai	501	Lys		501	001	*,		-	
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THE	цуз	1113	Lou			Oru	014	0111	650					655			
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Leu Ala Cys Asp Gly Gln Glu Ala Phe Asp Lys Val Lys Glu Leu Thr
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Asp Ile Val Leu Ser Asp Val Asn Met Pro Asn Met Asp Gly Tyr Arg

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Val Thr Ala Asn Ala Leu Ala Glu Glu Lys Gln Arg Cys Leu Glu Ser

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TIPLIBRIB TRIL

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<223> Description of Artificial Sequence:Designed
 oligonucleotide primer for PCR

<210> 12

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Designed
 oligonucleotide primer for PCR

<400> 12

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24

<210> 13

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Designed



## oligonucleotide primer for PCR

⟨400⟩ 13

accatgaact gggcactcaa caatcatcaa g

31

<210> 14

<211> 30

<212> DNA

<213> Artificial Sequence

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32

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32

⟨210⟩ 17

**<211> 33** 

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icggicgaci iaigaiicig iaicigaagg cga
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⟨220⟩
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32

<210> 19

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⟨213⟩	Artificial Sequence
<220>	
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oligonucleotide primer for PCR

ctagctagct taacaaggtt caaagaatct tgc

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33

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The first was the first of the first the first
Last the man the first fast
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32

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